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10/002,141	12/05/2001	Alexander Beeck	033275-316	3862

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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/002,141

Applicant(s)

BEECK ET AL.

Examiner

Christopher Verdier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-5 and 8-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5 and 8-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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Applicants' Amendment dated September 6, 2005 has been carefully considered but is non-persuasive. Claims 1, 3-5, and 8-15 are pending.

In response to the objection to the specification as failing to provide proper antecedent basis for the claimed subject matter in claim 1 of the second passage branching off the coolant passage at the curved flow section being arranged as a tangent to the curved flow section as set forth in the previous Office action, Applicants have argued that the specification at paragraph [0015] was amended in the Amendment After Final Rejection of April 21, 2005 to describe that the dust discharge aperture includes a wall flush with a wall of the cooling channel, and that the specification provides support for this subject matter. This argument is partially persuasive, because the specification still does not provide proper antecedent basis for the second passage branching off the coolant passage at the curved flow section being arranged as a tangent to the curved flow section. MPEP 608.01(o) requires that new terms that are introduced into the claims that do not appear in the specification be clarified by amending the specification so as to have clear support or antecedent basis in the specification for the new terms appearing in the claims.

With regard to the rejection of claim 5 under 35 USC 112, first paragraph, Applicants have argued that the subject matter recited in claim 5 is supported by the original application, and that claim 1 encompasses embodiments other than the embodiment of figure 2, including an inspection aperture with a wall flush with a wall of the coolant passage, and that the subject matter recited in claim 5 is also contained within the genus recited in claim 1. Applicants have further argued that the subject matter of a claim need not be described literally in order to satisfy

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the written description requirement, that the original disclosure contains with reasonable clarity to those skilled in the art that as of the filing date, Applicant was in possession of the claimed subject matter, and that one of ordinary skill in the art would understand that the direction of the longitudinal axis of the inspection aperture does not influence the feature of the inspection aperture including a wall flush with a wall of the coolant passage. These arguments are not persuasive, because claim 5 pertains to the embodiment of figure 1, which shows an inspection aperture 5. However, the inspection aperture 5 in the embodiment of figure 1 is not flush with a wall of the coolant passage 4, but rather has a wall perpendicular to the wall of the coolant passage. Therefore, the amendment to claim 1 introduces new matter into dependent claim 5. With regard to Applicants' argument that the subject matter of a claim need not be described literally in order to satisfy the written description requirement, this is true, however 35 USC 112, first paragraph prohibits introduction of new matter into the claims.

Applicants' argument that claim 5 is definite, because the fact that the specification is inconsistent with subject matter that Applicants regard as their invention is irrelevant to compliance with 35 USC 112, second paragraph, is not persuasive. Claim 5 is clearly inaccurate, because independent claim 1 was amended to recite that the inspection aperture includes a wall flush with a wall of the cooling passage. This pertains to the embodiment of figure 2, with the coolant passage being element 4, the second passage being element 7, and including an inspection aperture 5 that includes a wall flush with a wall of the cooling passage. The inspection aperture has its longitudinal axis essentially parallel to the axis of the fluid flow machine. However, claim 5 recites that the inspection aperture has its longitudinal axis

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essentially perpendicular to the axis of the fluid flow machine. Claim 5 pertains to the embodiment of figure 1, which is excluded by the instant amendment to claim 1 of the inspection aperture including a wall flush with a wall of the cooling passage, because in figure 1, the inspection aperture 5 has no wall flush with the wall of the coolant passage 4, but rather has a wall perpendicular to the wall of the coolant passage.

With regard to the rejection of claims 1 and 3-4 under 35 U.S.C. 102(b) as being anticipated by Krause 5,931,638, Applicants have argued that Krause does not disclose that the unnumbered inspection aperture of second passage 74 is arranged and dimensioned to enable introduction of a borescope through the inspection aperture and the second passage. Applicants have further argued that although borescopes exist with different sizes, the size of a borescope cannot be arbitrarily small due to the necessary optical aperture and the space needed for the movement control of the borescope head, and have noted the sizes of commercially available borescopes as set forth on page 2, paragraph 10 of Applicant's Remarks dated September 26, 2005. Applicants have further argued that the features recited in claim 1 regarding the size of the inspection aperture clearly define a minimum diameter for the inspection aperture to be usable for this purpose, and that Krause does not disclose an inspection means in the turbine blade 10, and does not suggest that the tip passage 74 can be used as an inspection aperture, much less that the tip passage 74 is arranged and dimensioned to enable the introduction of a borescope through the tip passage 74 and the second passage. Applicants have further argued that MPEP 2112 IV states that the fact that a certain result or characteristic may occur or be present is not sufficient to establish inherency, and that the examiner must provide a basis in fact and/or technical

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reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art, and that the Office action provides no basis in fact and/or technical reasoning to support the contention that in Krause, tip passage 74 has any particular size, or is dimensioned to enable introduction of a borescope through the inspection aperture and the second passage.

These arguments are not persuasive, because as set forth in the previous Office action, the recitation of the inspection aperture being arranged and dimensioned to enable introduction of a borescope through the inspection aperture and the second passage contains limitations which are a function of the size of the borescope, and the size of the borescope would determine whether or not it would be able to be introduced into the inspection aperture. A miniaturized borescope having a tiny diameter would be capable of being introduced into the inspection aperture.

### ***Specification***

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claim 1, last three lines, which recite that the second passage branches off the coolant passage at the curved flow section and is arranged as a tangent to the curved flow section, has no antecedent basis in the specification. Upon review of the specification, although these amended limitations are inherent in Applicants' drawings, MPEP 608.01(o) requires that new terms that are introduced into the claims that do not appear in the specification be clarified by amending the

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specification so as to have clear support or antecedent basis in the specification for the new terms appearing in the claims.

Claim 8, lines 7-9, which recite that the second passage branches off the coolant passage at the curved flow section and is arranged as a tangent to the curved flow section, has no antecedent basis in the specification.

Claim 8, last two lines, which recite that both the first section of the coolant passage and the second section of the coolant passage are partially defined by a common surface, has no antecedent basis in the specification.

Claim 9, which recites that the first section and the second section of the coolant passage are straight, has no antecedent basis in the specification.

Claim 11, last three lines, which recite that the second passage branches off the single section of the coolant passage at the curved flow section and is arranged as a tangent to the curved flow section, has no antecedent basis in the specification.

Claim 13, which recites that the first section and the second section of the coolant passage are straight, has no antecedent basis in the specification.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described

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in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claim 1 was amended to recite that the inspection aperture includes a wall flush with a wall of the cooling passage. This pertains to the embodiment of figure 2, with the coolant passage being element 4, the second passage being element 7, and including an inspection aperture 5 that includes a wall flush with a wall of the cooling passage. The inspection aperture has its longitudinal axis essentially parallel to the axis of the fluid flow machine. However, claim 5 recites that the inspection aperture has its longitudinal axis essentially perpendicular to the axis of the fluid flow machine. Claim 5 pertains to the embodiment of figure 1, which is excluded by the instant amendment to claim 1 of the inspection aperture including a wall flush with a wall of the cooling passage, because in figure 1, the inspection aperture 5 has no wall flush with the wall of the coolant passage 4, but rather has a wall perpendicular to the wall of the coolant passage. Therefore, the amendment to claim 1 introduces new matter into dependent claim 5.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 5 is inaccurate for the following reason: Independent claim 1 was amended to recite that the inspection aperture includes a wall flush with a wall of the cooling passage. This pertains to the embodiment of figure 2, with the coolant passage being



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element 4, the second passage being element 7, and including an inspection aperture 5 that includes a wall flush with a wall of the cooling passage. The inspection aperture has its longitudinal axis essentially parallel to the axis of the fluid flow machine. However, claim 5 recites that the inspection aperture has its longitudinal axis essentially perpendicular to the axis of the fluid flow machine. Claim 5 pertains to the embodiment of figure 1, which is excluded by the instant amendment to claim 1 of the inspection aperture including a wall flush with a wall of the cooling passage, because in figure 1, the inspection aperture 5 has no wall flush with the wall of the coolant passage 4, but rather has a wall perpendicular to the wall of the coolant passage. In claim 13, line 2, "the second section" is unclear if this is meant to refer to the second passage in claim 1, lines 3-4, for example, or not.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Krause 5,931,638. Note the component 10 of a fluid flow machine (a gas turbine engine), comprising a coolant passage comprising at least one curved flow section 68, 68, and a second passage 74 comprising an unnumbered inspection aperture, the inspection aperture including an unnumbered top wall flush with an unnumbered top wall of the coolant passage, the inspection aperture being

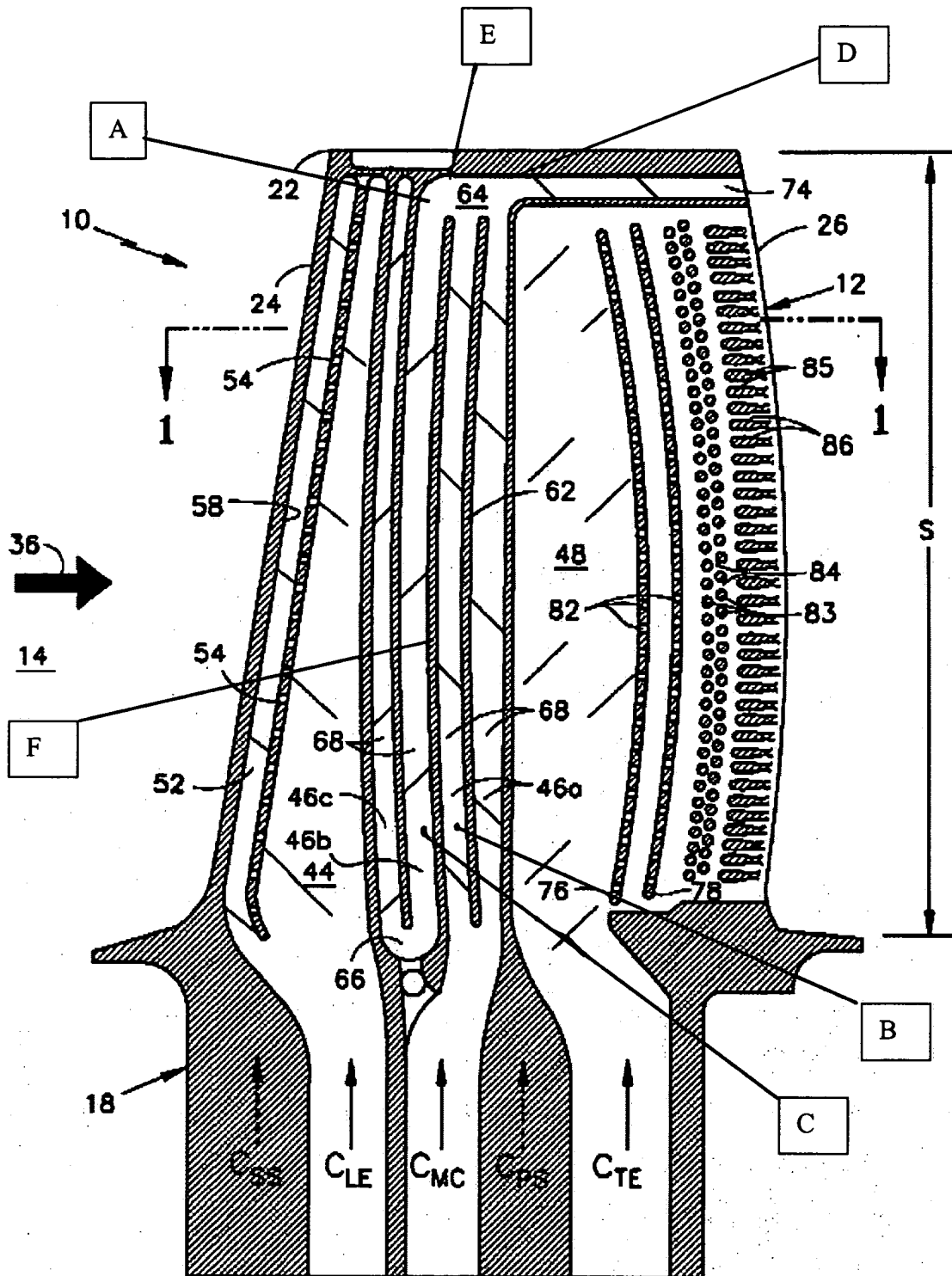
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arranged and dimensioned to enable introduction of a borescope through the inspection aperture and the second passage, and the second passage branching off the coolant passage at the curved flow section and being arranged as a tangent to the curved flow section, the component being a rotating blade for a turbine, and the inspection aperture being arranged in the neighborhood of a tip 22 of the blade, with the inspection aperture having its longitudinal axis essentially parallel to the axis of the fluid flow machine (the blade tip 22 is essentially parallel to the engine axis 38, therefore the inspection aperture 74 has its longitudinal axis essentially parallel to the axis of the fluid flow machine). The recitation in claim 1, lines 5-7 of the inspection aperture being arranged and dimensioned to enable introduction of a borescope through the inspection aperture and the second passage does not define over Krause, because these limitations are a function of the size of the borescope, and the size of the borescope would determine whether or not it would be able to be introduced into the inspection aperture. A miniaturized borescope having a tiny diameter would be capable of being introduced into the inspection aperture.

Claims 8, 10-12, and 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Krause 5,931,638. Please refer to the annotated figure below. Krause discloses a component 10 of a fluid flow machine, comprising a coolant passage comprising a curved flow section A, a first section B through which a cooling medium flows toward the curved flow section, and a second section C adjacent the first section through which the cooling medium flows away from the curved flow section, and a second passage 74 comprising an unnumbered inspection aperture, the inspection aperture including a top wall D flush with a wall E of the coolant passage, with the second passage branching off the coolant passage at the curved flow section and being arranged

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as a tangent to the curved flow section, wherein both of the first section of the coolant passage and the second passage are partially defined by a common surface F. The inspection aperture is arranged and dimensioned to enable introduction of a borescope through the inspection aperture and the second passage. The first section B may be considered as a single first section, through which the cooling medium flows from the coolant passage into the second passage. The coolant passage further comprises a second section C arranged downstream of the curved section, with the coolant passage and the second passage being arranged such that particles entrained in the cooling medium pass through the first section, through the second passage and are discharged through the inspection aperture, while the cooling medium which is relatively free of particles flows through the second section. The second section is adjacent the first section. The recitation of the inspection aperture being arranged and dimensioned to enable introduction of a borescope through the inspection aperture and the second passage does not define over Krause, because these limitations are a function of the size of the borescope, and the size of the borescope would determine whether or not it would be able to be introduced into the inspection aperture. A miniaturized borescope having a tiny diameter would be capable of being introduced into the inspection aperture.



***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 9 and 13 (as far as claim 13 is definite and understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Krause 5,931,638 in view of Sidenstick 3,628,885. Krause discloses a component of a fluid flow machine substantially as claimed as set forth above, including the first section B and the second section C of the coolant passage, but does not disclose that the first section B and the second section C of the coolant passage are straight. Rather, the first section and the second section of the coolant passage are curved.

Sidenstick shows a cooled turbine blade having coolant passages 58 which are straight, for the purpose of providing a direct path for cooling fluid to flow along the turbine blade.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the component of Krause such that the first section B and the second section C of the coolant passage are straight, as taught by Sidenstick, for the purpose of providing a direct path for cooling fluid to flow along the turbine blade.

Claims 11-12 and 14-15 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Krause 5,931,638 in view of Liang 5,975,851. Please refer to the annotated figure above. Krause discloses a component 10 of a fluid flow machine, comprising a coolant passage comprising a curved flow section A, a first section B through which a cooling medium flows from the coolant passage into a second passage 74, comprising an unnumbered inspection aperture, the inspection aperture including a top wall D flush with a wall E of the coolant passage, with the second passage branching off the first section of the coolant passage at the curved flow section and being arranged as a tangent to the curved flow section. The inspection aperture is arranged and dimensioned to enable introduction of a borescope through the inspection aperture and the second passage. The coolant passage further comprises a second section C arranged downstream of the curved section, with the coolant passage and the second passage being arranged such that particles entrained in the cooling medium pass through the first section, through the second passage and are discharged through the inspection aperture, while the cooling medium which is relatively free of particles flows through the second section. The

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second section is adjacent the first section. The recitation of the inspection aperture being arranged and dimensioned to enable introduction of a borescope through the inspection aperture and the second passage does not define over Krause, because these limitations are a function of the size of the borescope, and the size of the borescope would determine whether or not it would be able to be introduced into the inspection aperture. A miniaturized borescope having a tiny diameter would be capable of being introduced into the inspection aperture.

However, in Krause, the first section B may be considered as not being a single section.

Liang (figure 1) shows a cooled turbine blade having a single first section 40 through which coolant flows into a downstream adjacent passage 41, for the purpose of providing a single stream of cooling fluid to the downstream adjacent passage.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the component of Krause such that the first section B is a single section, as taught by Liang, for the purpose of providing a single stream of cooling fluid to the downstream adjacent passage which is second section C.

Claim 13, as far as it is definite and understood, is also rejected under 35 U.S.C. 103(a) as being unpatentable over Krause 5,931,638 and Liang 5,975,851 as applied to claim 11 above, and further in view of Sidenstick 3,628,885. The modified component of Krause shows a component of a fluid flow machine substantially as claimed as set forth above, including the first

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section B and the second section C of the coolant passage, but does not show that the first section B and the second section C of the coolant passage are straight. Rather, the first section and the second section of the coolant passage are curved.

Sidenstick shows a cooled turbine blade having coolant passages 58 which are straight, for the purpose of providing a direct path for cooling fluid to flow along the turbine blade.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified component of Krause such that the first section B and the second section C of the coolant passage are straight, as taught by Sidenstick, for the purpose of providing a direct path for cooling fluid to flow along the turbine blade.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,



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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.  
November 4, 2005

  
Christopher Verdier  
Primary Examiner  
Art Unit 3745